Exosphaeroma chilensis (Dana).

Sphaeroma chilensis Dana, U.S. Expl. Exped., Crust., p. 177, pl. 52, fig. 3 *a-c*, 1853. *Exosphaeroma chilensis* Chilton, Rec. Cant. Mus., vol. 1, p. 310, 1911.

Three specimens of this species were obtained at the Chatham Islands during the trawling cruise of the "Nora Niven," and are described in my report of the results of that cruise. I had previously had specimens from Lyttelton and Auckland, the latter collected by Mr. Suter.

The occurrence of the species in New Zealand is noteworthy as another addition to the marine species common to New Zealand and to South America.

Livoneca raynaudii Milne-Edwards.

Livoneca raynaudii M.-Edw., Hist. Nat. Crust., vol. 3, 1840, p. 262; Thielemann, Abhand. K. Bayer. Akad. d. Wissensch., 2, Suppl. Bd., 3 Abhand., p. 42, 1910; Chilton, Rec. Cant. Mus., vol. 1, p. 309, 1911.

I have discussed the synonomy of this species, which has so long been known in New Zealand under the name of *L. novae-zealandiae*, in the paper quoted above. The species is widely distributed in southern seas, and Thielemann records it also from Yokohama, adding that it is closely allied to *L. californica* Sch. & M., from the coast of California. *L. epimerias* Richardson, from Japan, also seems to be very closely allied, but, according to Miss Richardson, differs in the shape of the head and the epimera.

Art. XII.—*Report on Sundry Invertebrates from the Kermadec Islands.*

By Professor Benham, D.Sc., F.R.S., Otago University.

[*Read before the Otago Institute, 3rd October, 1911.*]

Mr. Oliver was good enough to hand to me (for the purpose of identification, or description if need be) representatives of various classes of non-vertebrata collected by him during his sojourn on Sunday Island. Unfortunately, my time has not allowed me to touch the *Oligochaeta*, the *Polychaeta*, *Nemertines*, or parasitic worms. In this brief report there are one or two points upon which I have to express uncertainty, owing to the lack of necessary literature; but it seems desirable to present this list, as I do not see any prospect of being in a better position in the immediate future to deal more fully with them.

Class Hydrozoa.

Order Siphonophora.

Physalia utriculus Eschscholtz.

Lesson, Voy. de "Coquille," vol. 2, pt. 2, chap. 15, p. 39; Zoophytes pl. 5, fig. 2. Haeckel, "Challenger" Reports, 28, p. 351.

Cast ashore on Denham Bay, Sunday Island. Widely distributed in the Pacific.

Velella cyanea Lesson.

Lesson, Voy. de "Coquille," vol. 2, pt. 2, chap. 15, p. 54: Zoophytes, pl. 6, figs. 3, 4. Haeckel, "Challenger" Reports, 28, p. 83.

This common Pacific species was cast ashore on Denham Bay.

Class Scyphozoa.

? Atolla sp.

A single somewhat torn and distorted specimen, measuring 30 mm. in diameter, with a height of 15 mm. in the centre of the umbrella, was found on the shore of Sunday Island. It was so much injured that I am not quite sure even of the genus; but it agrees in so many features with *Atolla* that I have but little hesitation in placing it here. I will not, however, attempt to give a specific name to it.

Class Holothuroidea.

Actinopyga (Muelleria) parvula Selenka.

M. flavo-castanea Theel: Selenka, Zeit. Wiss. Zool., 17, 1867. "Challenger" Reports, Holothuroidea, pt. 2, p. 198, 1886.

Fifteen specimens were sent to me. Oliver notes that the "colour is dark brown to nearly black: common at Coral Bay, under stones near low-water mark; not seen elsewhere." In alcohol it is chocolate-brown with a purplish hue. The majority are uniformly coloured, darker dorsally and only slightly paler ventrally; but in four individuals there is an abrupt transverse line separating the dark anterior region from a posterior paler region. In one specimen the change occurs at about $\frac{3}{5}$ of its length from the anterior end, in two others at $\frac{3}{4}$, and in one at $\frac{1}{7}$ of the length. From the condition of the ventral ambulacra it appears that this hinder end has been regenerated, for here the podia are in distinct narrow lines, whereas in the normal darker part of the body these organs spread out into the interambulacra, where there are about 15 in a transverse line, instead of only 2 to each ambulacrum. There is, too, a transition observable as the ambulacra are traced forwards, indicating a gradual resumption of the adult condition.

Distribution.—Bedford, in his report on the Funafuti Holothurians, speaks of this species as "the most widely distributed circumtropical species of the genus."

Chirodota rigida Semper.

Semper. Reisen im Archipel der Philippinen, Holothurien, p. 18, pl. 3, fig. 3; pl. 5, figs. 3, 13, 1868. Lyman Clark, "The Apodous Holothurians," p. 117, 1907.

The wheels differ from those figured, in that there is a distinct constriction of the radii at their junction with the rim; but, as my specimens agree in the general characters of the species, I have little doubt that this is the correct determination. Oliver states that the "general colour is reddish-purple; it occurs in sand and mud under stones in rock-pools and at low-water mark. It is not common."

Loc.—Meyer Island.

Distribution.—Clark says it is "apparently well distributed through the entire East Indian region."

Class Sipunculoidea.

Sipunculus nudus Linnaeus.

This Mediterranean species is widely distributed; it has been recorded from Singapore, Japan, and elsewhere.

Loc.—Sunday Island.

Collected by Mr. R. S. Bell.

Physcosoma scolops. Selenka and Man.

Phascolosoma annulata Hutton, Trans. N.Z. Inst., 12, p. 278, 1880. *Phymosoma scolops* Selenka and Man, "Die Sipunculiden," p. 75, 1884. *Physcosoma annulatum* Benham, Trans. N.Z. Inst., 36, p. 173, 1904.

When I described the Sipunculids of New Zealand (Trans. N.Z. Inst., vols. 36, 37) I had not the opportunity of consulting Selenka's monograph, which was only purchased by the Otago Institute at a later date. I find now that our common Sipunculid, which Hutton described in 1879, is identical with Selenka's *P. scolops*, a very widely distributed species, which was described five years later. Hutton's brief diagnosis, depending only on externals, is insufficient for identification, and so must give way to Selenka's specific name.

I note that, although Fischer (Die Gephyrea, Abhandl. aus dem Gebiete Naturwiss., 13, p. 10, 1895) regards *P. scolops* as a variety of the Mediterranean *P. granulatum*, Shipley still retains it as a distinct species (Willey, Zool. Results Rep. on the Sipunculoidea, p. 156, 1899; and Rep. on the Gephyrea, Pearl Oyster Fishery, Ceylon, p. 174, 1903).

It is evidently very common on the Kermadec Islands, for I have more than fifty I collected on various parts of Sunday Island and on Meyer Island in the ordinary positions—that is, under stones in rock-pools, in amongst coralline algae, &c.

The distribution is very wide.

Aspidosiphon truncatus Keferstein.

Selenka and Man, "Die Sipunculiden," p. 118, pl. 13, 1884.

Of this identification I do not feel quite certain, for the convolutions of the intestine are fewer, and the longitudinal muscle bands rather more numerous; but as our specimens agree in so many features with those of Keferstein's species, and do not agree with any other description to which I have access, I place it here. The differences are so slight that I do not feel competent to differentiate a new species.

Loc.—Sunday Island, in coralline algae. Six specimens.

Distribution.—Mauritius, Panama, Japan (Ikeda, Journ. Coll. Sci., 20).

Class Chaetognatha.

Sagitta fowleri nom. nov.

Fowler, "On Plankton Chaetognatha of the Bay of Islands, New Zealand," Ann. Mag. Nat. Hist. (8), 1, p. 240, 1908.

I received seven specimens of a rather large Chaetognath which had been cast ashore, and were somewhat injured, and had unfortunately been placed in a tube rather too small for them, so that they are not only damaged by the sand, but also folded and crumpled. At first I failed to notice the anterior lateral fin, and took it for a species of *Krohnia;* but the formula given by Dr. G. H. Fowler for an unnamed species from the Bay of Islands

agrees so precisely with the Kermadec forms, and in some respects is so exceptional, that I carefully went through all the specimens again. In only one individual could I detect the anterior fin, and this quite plainly, although it was folded against the body. In its extent it does not agree with Fowler's figure, though he places a (?) against his statement in the text. But owing to the damage done to the posterior fin, and owing to the tenuity of this anterior fin, I should not presume to doubt Fowler's statement that this fin extends forwards as far as the level of the ventral ganglion, though, so far as my specimen shows it, the fin is of much less extent.

Fowler refrained from naming his two immature and somewhat damaged specimens, and did not even place it in a genus, though he states that certain of its characters "suggest *hexaptera*," at the same time pointing out certain differences from that species. As the only genus with two lateral fins is *Sagitta*, there is little doubt that he intended to compare it with *S. hexaptera*, and I take the opportunity of naming it after him.

My specimens vary from 23–35 mm. in total length, with a diameter of 2·5–3 mm. Owing to flaccidity of the body, it flattens easily, and has, as I have said, been crumpled.

The head is distinctly constricted from the body; the curved hooks, or "jaws," are 8 or 9 on each side; in one case 8 on one side and 9 on the other. They have no distinct separate tip, but the whole hook is gently curved and without any serrations.

The frontal spines, or "anterior teeth," are on 3 each side, though in one case 4 on one side and 3 on the other.

The marginal spines, or "hinder series of teeth," form a row of 3 short conical spines on the sloping anterior margin of the head.

The tail fin is in all my specimens slightly notched; the posterior lateral fin commences rather in front of the middle of the tail, and is widest just behind the anus. So far as the imperfect condition allows one to judge, it has $\frac{1}{3}$ of its length behind and $\frac{2}{3}$ in front of the anus.

The anterior fin is only 3 mm. in length; it seems well defined, and I failed to see any evidence of its continuation forwards; its anterior margin is 10 mm. from the tip of the head (the ventral ganglion being about 6 mm.); its posterior limit is 5 mm. in front of the anus—that is, close to the posterior fin.

The formula used by Fowler is—

Total Length.	Tail, as Percentage of Total Length.	Number of Jaws.	Number of Anterior Teeth.	Number of Posterior Teeth.
35	20	8	..	..
27	20	9	3	3
25	20·3	8–9	3–4	3

Loc.—Sunday Island.
Distribution.—Bay of Islands.

Class Enteropneusta.

Ptychodera flava Eschscholtz.

Willey, Q. J. Mic. Sci., 40, p. 165. Punnett, Enteropneusta, Fauna Maldive and Laccadive Archip., vol. 2, pt. 2.

A single lacerated broken individual, found "under stones" at Coral Bay, Sunday Island, July, 1908.
Distribution.—Indian Ocean.